

# *Omphalea celata*, a new species of Euphorbiaceae from central Queensland

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## Summary

Forster, Paul I. (1995). *Omphalea celata*, a new species of Euphorbiaceae from central Queensland. *Austrobaileya* 4(3): 381–385. *Omphalea celata* P.I.Forst. is described and illustrated. This species is known from two localities in central Queensland and is considered vulnerable. A key is provided to identify the three species of *Omphalea* that occur in Australia.

Key words: *Omphalea celata*; Euphorbiaceae, Australia.

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## Introduction

The genus *Omphalea* L. comprises approximately fifteen species of scandent lianes, shrubs and small trees and is distributed in both the Old and New World tropics with a concentration of taxa in the latter region (Webster 1994). Until recently, one species of *Omphalea* has been recognised for Australia, namely *O. queenslandiae* F.M.Bailey from tropical north-eastern Queensland in the area known as the 'Wet Tropics' (e.g. Bailey 1902; Airy Shaw 1981). A second species, *Omphalea papuana* Pax & K.Hoffm. has recently been recognised for Queensland (Forster 1994), based on identifications by L. Gillespie (US) of collections from the Iron Range area, Cape York Peninsula, Queensland. Both *Omphalea papuana* and *O. queenslandiae* are scandent lianes which grow in the canopy of notophyll and mesophyll vineforest communities. Over twenty years ago, J.P. Stanton, an officer with the Queensland National Parks & Wildlife Service (QNPWS) collected a few flowering twigs of an unknown Euphorbiaceous plant near Eungella in central Queensland. Stanton gave the material to L.J. Webb and J.G. Tracey who deposited it at the Queensland Herbarium. Eventually this material acquired a label stating it to be a 'new species' of *Aleurites* and fruiting collections were made in the early 1990's by other officers of the QNPWS during botanical survey of the Eungella National Park and surrounds.

Accepted for publication 6 March 1995

While this material undoubtedly represented a new species of Euphorbiaceae, its systematic position was unclear due to the lack of good material of male and, particularly, female flowers. As a result, the few then-existing specimens were filed in the Queensland Herbarium as "*Aleurites* sp. (Hazlewood Gorge, S.G. Pearson SP439)" and listed as this in the recent census of Queensland vascular flora (Forster 1994). The eventual collection of flowering material of both sexes from this species has revealed it to be an undescribed species of *Omphalea*.

## Materials and Methods

This paper is based wholly on collections in the Queensland Herbarium (BRI) or to be distributed from there. The type locality was visited several times by the author in pursuit of fertile material of this taxon.

## Taxonomy

***Omphalea celata* P.I.Forst., sp. nov.** affinis *Omphalea papuanae* Pax & K.Hoffm. et *O. queenslandiae* F.M.Bailey a quibus habitu arboreo (non scandenti) et folii lamina venatione penninervi (non palmatinervi) venis lateralibus 8–14 in quoque latere costae differt. **Typus:** Queensland. SOUTH KENNEDY DISTRICT: Hazlewood Gorge, south-southwest of Eungella, 20 July 1994, P.I. Forster 15643 (holo: BRI [2 sheets + spirit]; iso: AD, DNA, K, L, MEL, NSW, MO).

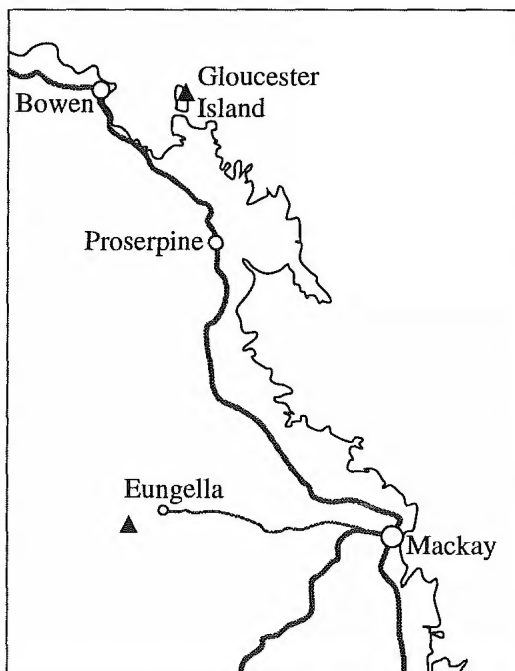
*Aleurites* sp. (Hazlewood Gorge, S.G. Pearson SP439); Forster (1994: 107).

Small tree to 12 m high, perennial, evergreen, monoecious. Bark glossy with surface verrucose, cream; wood straw-coloured. Stipules lanceolate, 1.3–1.5 mm long, 0.5–0.6 mm wide, glabrous, caducous. Leaves alternate; petioles 20–75 mm long, 0.6–1 mm diameter, grooved adaxially, glabrous or with scattered trichomes; lamina lanceolate, lanceolate-ovate or ovate, 45–120 mm long, 16–80 mm wide, penninerved with 8–14 lateral veins per side of midrib and reticulate interlateral tertiary veins; upper surface dark grey-green with venation  $\pm$  obscure, glabrous; lower surface pale grey-green with venation well developed, glabrous; tip acuminate; base attenuate to cuneate; glands 2, distal on petiole,  $\pm$  sessile, circular, 0.8–1 mm diameter. Inflorescences terminal, up to 80 mm long, bisexual, with male flowers greatly outnumbering female flowers, paniculate; peduncles up to 17 mm long, glabrous or with scattered simple and stellate trichomes. Inflorescence bracts of two kinds; proximal bracts similar in form to leaves in being petiolate and with a lamina; petiole 50–80 mm long, c. 0.5 mm diameter, with 2 distal glands; lamina linear to lanceolate, 45–55 mm long, 1–8 mm wide, glabrous or with scattered trichomes; distal bracts sessile, lanceolate, 0.6–1 mm long, 0.4–0.5 mm wide, glabrous. Male flowers 1.4–1.5 mm long, 3–3.5 mm diameter; pedicels 5–9 mm long, c. 0.5 mm diameter, filiform, glabrous or with scattered trichomes; sepals 5, imbricate, broadly ovate to ovate-orbicular, 2–2.5 mm long, 2–2.4 mm wide, green; petals absent; disk composed of 5 fleshy lobes 1–1.2 mm long and 1.6–1.7 mm diameter, connate basally to form an annulus around the staminal column; staminal column c. 0.5 mm long and 0.2 mm diameter; anthers forming a peltate 3-lobed synandrium 0.6–0.8 mm diameter; anther thecae c. 0.5 mm long, yellow. Female flowers 4.5–5 mm long, c. 3 mm diameter, green; pedicels 2.5–3 mm long, 0.8–1 mm diameter, stout, with scattered trichomes; sepals 5, imbricate, ovate to orbicular-ovate, 2–3 mm long, 1.7–3 mm wide, with scattered trichomes; petals absent; disk composed of 5 small irregular fleshy lobes at the base of the sepals, each lobe 0.2–0.3 mm long; ovary  $\pm$  globose, 0.9–1 mm long, 2- or 3-locular, with 1 ovule per locule; styles connate into a thick obtuse column c. 2 mm long and 1.6–1.7 mm diameter. Fruit subglobose, 2- or 3-lobed with a pointed apex, 50–60 mm long, 50–60 mm

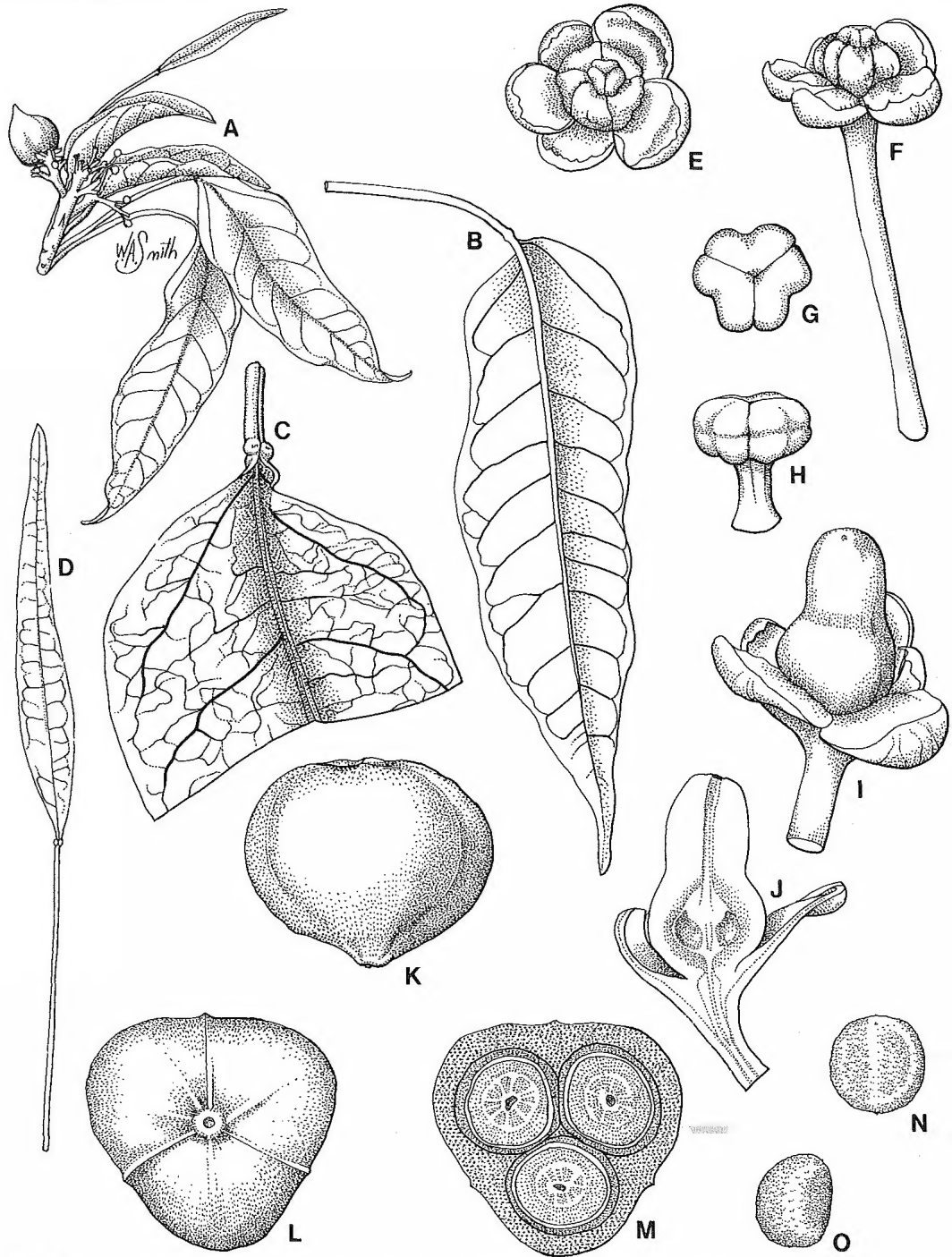
diameter, thick-walled, subdrupaceous and indehiscent; exocarp fleshy; endocarp woody. Seeds subglobose, 23–25 mm long, 23–25 mm wide, 20–22 mm across, smooth, pale grey-brown. **Fig. 1.**

**Additional specimens examined:** Queensland. NORTH KENNEDY DISTRICT: Gloucester Island, east coast, 6 km N of Chinaman's Rock, Sep 1992, *Batianoff* 920913 (BISH, BRI). SOUTH KENNEDY DISTRICT: [all type locality] Dec 1973, *Stanton in Webb & Tracey* 13724 (BRI, L, MEL, QRS); Feb 1992, *Pearson* SP439 (BRI); Nov 1992, *Pearson* s.n. (BRI, MEL, QRS); Dec 1992, *Bean* 5278 (BRI); Jan 1993, *Forster* 12715 & *Pearson* (A, BRI, K, L, MEL, QRS); Dec 1993, *Forster* 14278 & *Pearson* (A, BRI, K, L, MEL, QRS); Jun 1994, *Forster* 15241 *et al.* (BRI, K, L, MEL, NSW, QRS).

**Distribution and habitat:** *Omphalea celata* is known from two localities in the North Kennedy and South Kennedy districts of central Queensland (**Map 1**). At Hazlewood Gorge, plants grow in fragmented semi-evergreen vine thicket along a more or less permanent watercourse on weathered metamorphics in a steep-sided gorge at an altitude of about 560 m. On Gloucester Island they grow in a rocky granitic gully near to araucarian microphyll vineforest (G.N. Batianoff, pers. comm. 1994).



**Map 1.** Distribution of *Omphalea celata* in Central Queensland.



**Fig. 1.** A–O. *Omphalea celata*. A. shoot tip with young fruit  $\times 0.6$ . B. abaxial surface of leaf  $\times 1$ . C. lower portion of leaf lamina showing adaxial petiolar glands  $\times 2$ . D. proximal inflorescence bract  $\times 1$ . E. apical view of male flower  $\times 6$ . F. lateral view of male flower  $\times 6$ . G. apical view of anther synandrium  $\times 16$ . H. lateral view of staminal column  $\times 16$ . I. lateral view of female flower  $\times 6$ . J. longitudinal section of flower  $\times 6$ . K. lateral view of fruit  $\times 0.5$ . L. basal view of fruit  $\times 0.5$ . M. transverse section of fruit  $\times 0.5$ . N. abaxial view of seed  $\times 0.5$ . O. lateral view of seed  $\times 0.5$ . (A–D from Pearson s.n. (BRI); E–J from Forster 15241 *et al.* (BRI); K–M from Forster 14278 & Pearson (BRI); N–O from Forster 12715 & Pearson (BRI)). Del. W. Smith.

**Notes:** Determining the specific affinities of *Omphalea celata* has proved difficult. Both *Omphalea papuana* and *O. queenslandiae* are superficially similar, scandent canopy lianes with palminerved foliage, whereas *O. celata* is a small tree with penninerved foliage. Only *Omphalea papuana* is known to be present in adjacent New Guinea. There are several arborescent species in Borneo and the Philippines, but they are greatly disjunct from the occurrences of the new species. *Omphalea celata* is very restricted in its occurrence with limited effective dispersal of propagules, hence it is unlikely to have been in close contact with any other species of *Omphalea* in recent times.

*Omphalea celata*, together with *O. papuana*, *O. queenslandiae*, *Endospermum myrmecophilum* L.S.Sm. and *E. medullosum*

L.S.Sm., is a host-plant for the endemic Australian day-flying Zodiac Moth *Alcides zodiaca* (Forster & Sankowsky 1995), thus indicating similar chemical constituents in all these taxa. Other taxa of *Omphalea* in the New World are host-plants for taxa of Uraniid moths related to *Alcides zodiaca* (Coleman & Monteith 1981; Monteith & Wood 1987). A study of the relationships between the Euphorbiaceous hosts and the uraniid moths over the ranges of both would be of great interest and may contribute towards an understanding of their phylogeny.

A full account of the genus *Omphalea* in Australia will be provided in the forthcoming 'Flora of Australia' Vol. 23. *Omphalea celata* may be distinguished from the other two Australian species using the following key.

#### Key to the Australian species of *Omphalea*

1. Trees; leaves penninerved, with 8–14 lateral veins per side of midrib . . . ***O. celata*** P.I.Forst.  
Scandent lianes; leaves palminerved, 3–5-nerved at base and with 7–9  
additional lateral veins per side of midrib . . . . . 2
2. Juvenile leaves trilobed; adult leaves 5-veined from base . . . ***O. papuana*** Pax & K.Hoffm.  
Juvenile leaves entire; adult leaves 3-veined from base . . . . . ***O. queenslandiae*** F.M.Bailey

**Etymology:** The specific epithet is derived from the Latin *celatus*, concealed or hidden, and alludes to the populations of this plant occurring in inaccessible localities.

**Conservation status:** *Omphalea celata* is common at the type locality with several dozen mature plants present within a small area of several hectares. The area is likely to be added to the Eungella National Park in the future and while there are no obvious immediate human threats, there is a continual danger of physical damage to the plants from rock avalanches at the locality. Less than a dozen plants have been observed at the Gloucester Island locality (G.N. Batianoff, pers. comm. 1994) which is within a National Park. *Omphalea celata* warrants a

conservation coding of 3VC (cf. Briggs and Leigh 1988) due to its restricted distribution and the small number of known individuals.

#### Acknowledgments

W. Smith (BRI) provided the illustrations. Assistance with the collection of material was provided by G.N. Batianoff (BRI), A.R. Bean, G. Kenning, S.G. Pearson and M.C. Tucker. Comments on a draft of the manuscript were provided by A.R. Bean (BRI). Translation of the diagnosis into Latin was undertaken by P.D. Bostock (BRI). This work was funded by the Australian Biological Resources Study during 1992 to 1994 as a preferred objective research project for the 'Flora of Australia'.



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